CLAIMS

We claim:

1.   A method for subcarrier selection for a system employing orthogonal frequency division multiple access (OFDMA) comprising:

partitioning subcarriers into a plurality of groups of at least one cluster of subcarriers; and

receiving an indication of a selection by the subscriber of one or more groups in the plurality of groups; and

allocating at least one cluster in the one or more groups of clusters selected by the subcarrier for use in communication with the subscriber.

2.   The method defined in Claim 1 further comprising the subscriber sending the indication to a base station.

3.   The method defined in Claim 1 further comprising sending an indication of the group of clusters selected by the base station for use by the subscriber.

4.   The method defined in Claim 1 wherein clusters in each of the plurality of groups of clusters are spaced apart over bandwidth allocatable by the base station.

5.   The method defined in Claim 1 wherein clusters in each of the plurality of groups are spaced apart farther than coherent bandwidth of each channel between the base station and the subscriber.

6.   The method defined in Claim 1 further comprising selecting the at least one cluster based on a group priority in which the subscriber has a higher priority for use of the group of clusters containing the at least one cluster than at least one other subscriber.

7.   The method defined in Claim 1 wherein the one or more groups is only a subset of all of the groups of clusters allocatable by a base station.

8.   The method defined in Claim 1 further comprising:

sending a pilot signal to the subscriber.

9. The method defined in Claim 8 wherein the pilot signal indicates availability of each cluster.

10. The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the feedback information comprises SINR information for at least one cluster in each of the one or more groups.

11. The method defined in Claim 10 wherein the subscriber has a fixed association with the at least one group of clusters, such that group identifier information to identify groups associated with the SINR information is not necessary.

12. The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the feedback information is ordered based on the SINR values of clusters in the one or more groups.

13. The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the feedback information comprises a group identifier and SINR value of each cluster within each group.

14. The method defined in Claim 13 wherein the group identifier comprises a group index.

15. The method defined in Claim 13 wherein the feedback information is formatted with, for each of the one or more groups, a group identifier followed by the SINR values of clusters in said each of the one or more groups.

16. The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the feedback information is protected using error correcting codes.

17.   The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the feedback information is compressed using source coding techniques and encoded with error correcting.

18.   The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the feedback information comprises a list of candidate cluster groups desired for use by the subscriber and their associated signal plus interference to noise ratio (SINR), the candidate clusters desired for use being a set of all possible clusters with SINRs relatively higher than other clusters in the set of all possible clusters.

19.   The method defined in Claim 18 wherein the list of candidate cluster groups is ordered based on SINR values of clusters in the list.

20.   The method defined in Claim 18 wherein the list of candidate cluster groups is ordered based on an SINR associated with

each cluster in the group of clusters and availability of cluster groups in the list.

21.   The method defined in Claim 18 wherein the feedback information includes a cluster group identifier followed by an SINR value for each cluster in the candidate cluster group.

22.   The method defined in Claim 21 wherein the group identifier comprises a group index.

23.   The method defined in Claim 1 further comprising receiving feedback information on the one or more groups of clusters of subcarriers from the subscriber, and wherein the subscriber is associated with at least one group of clusters and, further wherein the feedback information includes an SINR value associated with each group of clusters without explicitly specifying an index to the group of clusters.

24.   The method defined in Claim 1 further comprising:

receiving additional feedback information on the one or more groups of clusters; and

allocating additional clusters to the subscriber.

25.   A cellular network using OFDMA channels for communication, the network comprising:

a plurality of cells, each of the plurality of cells having a plurality of sectors;

a base station in each of the plurality of cells, wherein each base station allocates a first portion of OFDMA channels in a first portion of the plurality of sectors and a second portion of the OFDMA channels in a second portion of the plurality of sectors.

26.   The cellular network defined in Claim 25 wherein the first portion of OFDMA channels comprises one half of the OFDMA channels.

27.   The cellular network defined in Claim 25 wherein the first portion of the plurality of sectors comprises one half of the plurality of sectors.

28.   The cellular network defined in Claim 25 wherein different cluster groups of OFDMA channels have assigned different priorities in different cells by which a base station in one of the plurality of cells determines cluster group allocation in the one cell.

29.   The cellular network defined in Claim 28 wherein the assigned different priorities are designed such that a cluster may be allocated in the one cell to reduce interference from subscribers in other cells and to reduce interfering subscribers in other cells.

30.   A cellular network using OFDMA channels for communication, the network comprising:

a plurality of cells;

a base station in each of the plurality of cells, wherein each base station allocates groups of clusters based on priorities assigned to different cluster groups based on the cell of the plurality of cells in which said each base station resides.

31.   The network defined in Claim 30 wherein priority orders are designed to enable selective assignment of a cluster of subcarriers to avoid interference while reducing a probability of causing interference with existing assignments of one or more clusters of subcarriers.